PMD49

THE POTENTIAL ROLE OF MAGNETIC RESONANCE IMAGING (MRI) IN AXILLARY NODE ASSESSMENT OF EARLY BREAST CANCER: AN ECONOMIC EVALUATION

Meng Y[1], Ward SE[1], Cooper K[1], Harnan SE[1], Wyld L[2]
[1]University of Sheffield, Sheffield, UK, [2]Royal Hallamshire Hospital, Sheffield, UK

OBJECTIVES: Surgical techniques including sentinel lymph node biopsy (SLNB) and 4-node sampling (4-NS) are currently used for axillary nodal assessment of early breast cancer (EBC) in the UK. Such procedures are associated with adverse effects, (AEs), in particular scarring, pain, general anaesthesia and occasional lymphoedema which may impact on long term quality of life. Magnetic resonance imaging (MRI) is a non-invasive technique offering the potential to avoid such AEs. A range of MRI techniques, including USPIO (ultrasmall superparamagnetic iron oxide contrast agent)-enhanced and gadolinium-enhanced MRI exist, however diagnostic accuracy of these techniques may be lower than for surgical techniques. An economic evaluation was undertaken to compare MRI with surgical techniques for assessment of axillary lymph node metastases in patients with EBC. **METHODS:** The costs and benefits of replacing SLNB or 4-NS with MRI (replacement strategy) or adding MRI before the surgical techniques (addition strategy) were modelled using discrete-event simulation in SIMUL8®. A systematic review was undertaken to obtain effectiveness outcomes of the MRI techniques, whilst resource use data and health related utilities were obtained from the literature. **RESULTS:** Our results predict that a replacement strategy for MRI, based on the pooled estimate of all MRI techniques, dominates the baseline SLNB and 4-NS strategies, as a result of avoiding AEs from surgical techniques. However this strategy leads to more false-positive and false-negative cases. The MRI addition strategy may also be cost-effective, but is subject to greater uncertainty. USPIO-enhanced MRI produces the most favourable cost effectiveness ratio, but the evidence is based on studies with small patient numbers. **CONCLUSIONS:** These results suggest that there is a potential role for MRI in axillary node assessment of EBC. Based on current evidence USPIO-enhanced MRI offers the most cost effective option, but further large studies are required to obtain high quality evidence on diagnostic accuracy.

PMD50

COST-EFFECTIVENESS OF CARDIAC RESYNCHRONISATION THERAPY FOR PATIENTS WITH MODERATE-TO-SEVERE HEART FAILURE

Neyt M, Stroobandt S, Obyn C, Camberlin C, Devriese S, De Laet C, Van Brabandt H
Belgian Health Care Knowledge Centre, Brussels, Belgium

OBJECTIVES: To assess the cost-effectiveness of cardiac resynchronisation therapy (CRT) both with CRT-P (biventricular pacemaker only) and CRT-D (biventricular pacemaker with defibrillator) in patients with New York Heart Association (NYHA) functional class III/IV from a Belgian health care payer perspective. **METHODS:** A lifetime Markov model was designed to calculate the cost-utility of both interventions. In the reference case, the treatment effect is based on the COMPANION trial. Costs are based on real-world data. Pharmacoeconomic guidelines were applied, including probabilistic modelling and sensitivity analyses. **RESULTS:** Compared with optimal medical treatment, on average 1.31 quality-adjusted life-years (QALY) are gained with CRT-P at an additional cost of €14,700, resulting in an incremental cost-effectiveness ratio (ICER) of about €11,200/QALY. As compared to CRT-P, CRT-D treatment adds on average an additional 0.55 QALYs at an extra cost of €30,900 resulting in an ICER of €57,000/QALY. This result was very sensitive to the incremental clinical benefit of the defibrillator function on top of CRT. **CONCLUSIONS:** Based on efficiency arguments, CRT-P can be recommended for NYHA class III and IV patients if there is a willingness to pay more than €11,000/QALY. Even though CRT-D may offer a survival benefit over CRT-P, the incremental clinical benefit appears to be too marginal to warrant a three times higher device price for CRT-D. Further clinical research should focus on the added value of CRT-D over CRT-P.

PMD51

COST SAVINGS AND IMPROVED UTILITY THROUGH THE USE OF FLORBETABEN BETA-AMYLOID PET IMAGING IN DEMENTIA DIAGNOSIS

Pastätter R[1], Uhl-hochgräber K[2], Blankenburg M[2]
[1]Karolinska Institute, Stockholm, Sweden, [2]Bayer HealthCare Pharmaceuticals, Berlin, Germany

OBJECTIVES: Early diagnosis of Alzheimer's disease may allow for early appropriate treatment, delayed symptom aggravation, delayed nursing home placement, and reduced care costs. The use of Amyloid-specific Positron Emission Tomography (PET) scanning might complement routine clinical diagnostic procedures and lead to earlier and more accurate differential diagnosis than presently possible. The aim of this study is to estimate cost-effectiveness of Florbetaben PET imaging. **METHODS:** A decision-analytic model using Markov cohorts to simulate Alzheimer's disease (AD) management compares, from a societal perspective, three strategies after routine clinical assessment: 1) use of Florbetaben PET to direct treatment decisions; 2) "treat all" approach; 3) "wait and see" approach. **RESULTS:** Florbetaben PET appears to be cost-effective and strictly dominant: both comparator strategies result in higher long-term costs at lower health outcomes. Values of incremental costs saved (US$2340 – without considering cost of Florbetaben tracer) and health outcomes gained (0.028 QALYs) to the nearest comparator strategy are small. However, the results prove to be robust in sensitivity analyses. **CONCLUSIONS:** Although Florbetaben PET imaging has significant upfront costs, identifying and treating patients with AD early and correctly results in overall cost savings and QALYs gained. This analysis may underestimate the true benefit of Florbetaben PET imaging because the value of knowing early about the underlying pathology from the perspective of patients and caregivers is not implemented in the model – apart from medical and economic value, even emotional aspects and the opportunity for future planning should be considered. This could be subject of further research.

PMD52

WORKLOAD IN GERMAN HOSPITALS CAUSED BY ROUTINE FOLLOW-UP SERVICES FOR CARDIAC IMPLANTABLE ELECTRICAL DEVICES (CIED)

Smala A[1], Vogtmann T[2]
[1]Biotronik SE & Co KG, Global Reimbursement and Health Economics, Berlin, Germany, [2]Kardiologische Gemeinschaftspraxis "Am Park Sanssouci", Potsdam, Germany

OBJECTIVES: Regular follow-up (FU) of CIED patients is mandatory to monitor device functionality and disease status. Demand for this highly specialised service increases continuously. However, most calendar based visits do not need further action and could safely be replaced by remote monitoring. This model aims 1) to quantify hospital workload associated with calendar based FU between 2011 and 2015, and 2) to identify opportunity costs if monitoring services would be performed remotely. **METHODS:** The estimated number of prevalent CIED patients in Germany was combined with recently published data on healthcare personnel resource burden related to FU. Opportunity costs were identified considering 2011 DRG payments for frequent cardiology procedures. **RESULTS:** Assuming in-office FU twice annually for pacemaker patients, and four times annually for implantable cardioverter defibrillator or cardiac resynchronisation therapy patients, hospitals will have to provide about 2.23 mio FU services in 2015, to about 856,000 patients. These services will bind about 411,000 physician hours, 392,000 nurse hours and 280,000 technician hours, at total costs of EURO 44.8 mio to hospitals. Using remote monitoring to replace all but one in-office FU visit per year could free up to 126,700 physician hours (2015). In theory, this physician time would allow for about 50'600 bypass surgeries (worth EURO 596 mio), or 84,400 dual-chamber pacemaker implantations (EURO 434 mio), or 63,300 dual chamber ICD implantations (EURO 1.1 billion). Possible cost overestimation due to not considering unscheduled FU visits is explored in scenario analyses. **CONCLUSIONS:** The ability of BIOTRONIK Home Monitoring to safely replace in-office FU visits has been proven in clinical trials. While continuously monitoring all patients, it is possible to identify patients in need to attend in clinic FU in person. Remote monitoring technologies can support hospitals with focussing their available staff and room capacities and optimise operative income while providing patient care at potentially improved outcomes.

PMD53

PULMONARY VEIN ISOLATION FOR THE TREATMENT OF PAROXYSMAL AF: TIME REDUCTION AND PRODUCTIVITY GAIN WITH "ANATOMICALLY-DESIGNED" CATHETHERS COMPARED TO "POINT BY POINT" CATHETERS

Fagnani F[1], Coulomb S[1], Marcaud N[2], Bouchet M[2], Bonté J[1]
[1]Cemka, Bourg la Reine, France, [2]Medtronic France SAS, Boulogne Billancourt, France

OBJECTIVES: Electrical Pulmonary Vein (PV) Isolation (PVI) is regarded as effective treatment of Symptomatic Drug-Refractory Paroxysmal Atrial Fibrillation (PAF). Traditionally, appropriate circumferential lesions were created point-by-point, using single tip catheters guided by navigation systems, and generally employing radiofrequency (RF) source. "Anatomically-Designed" catheters were introduced recently and are pre-shaped to create the appropriate lesions with a single application on each PV. We hypothesised that the shape of these catheters is associated with reduced procedure times and Operating Room (OR) productivity gains. In this study, catheters employing cryo (Arctic Front, Medtronic) and duty cycled bipolar radiofrequency (PVAC, Medtronic) energy sources were examined. **METHODS:** Using a chart review approach, 158 procedures were included (85 with "anatomically-designed" catheters, 73 "point-by point") across 7 diversified French centres. Selection criteria were used to ensure comparability of procedures. In parallel an economic analysis was performed to estimate the budgetary impact in terms of DRG case-mix for hospitals, resulting from potential increased OR activity. **RESULTS:** Reduced procedure time was observed in six out of seven participating centres. The difference in median times was 35 minutes (p=0.0192). There was significant variability of procedures times depending on hospital status (public or private), the experience of electrophysiologists involved and the annual activity. Based on the DRG casemix produced in the rythmology OR and the current tariffs, the mean revenue for the centre was estimated between 1100€ (private) and, 400 € (public) per hour of total OR time. **CONCLUSIONS:** Use of "Anatomically-Designed" PVI Catheters has the potential to substantially reduce procedure time and increase procedure capacity of rythmology labs. Shorter procedure times allow better management of OR and treatment of more patients with potential productivity gains to hospitals that may offset the extra cost of the new techniques.

PMD54

RESOURCE UTILISATION RELATED TO CATHETER-ASSOCIATED URINARY TRACT INFECTIONS IN SWEDISH SPINAL INJURY PATIENTS

Bruce S[1], Löfroth E[1], Knutsson B[2], Börstell T[2], Myrén KJ[1]
[1]IMS Health, Stockholm, Sweden, [2]AstraTech, Mölndal, Sweden

OBJECTIVES: To collect real-life data on costs and resource use, in order to understand the economic burden and treatment patterns of urinary tract infection (UTI) amongst people with spinal injury, who are in need of chronic, intermittent catheterisation. **METHODS:** We used the CEBRxA database, which combines data from a public claims database for the South-West region of Sweden, comprising around 1.5 million individuals, with national Swedish registers on drug utilisation and mortality. We identified a population of spinal injury patients (ICD-10 S14.0, S24.0, S34.0, and T91.31) who in addition had received a diagnosis of neurogenic bladder (ICD-10 N31*), anytime during the years 2000 to 2009. UTIs were identified through the following ICD-10 codes: N11.0, N30*, N39.0*, N39.X*, N12.-P, and N30.-P. A cost per UTI was calculated through considering UTI-related care contacts that occurred within 14 days from each other (from 2005-07-01 onwards). **RESULTS:** We